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| 09/319,202 | 06/02/1999 | OSAMU SHIRASAKI | 20-4576P | 2596 |
| 2292 | 7590 | 09/17/2004 | EXAMINER | |
| BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | GOFF II, JOHN L | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1733 | |

DATE MAILED: 09/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/319,202

Applicant(s)

SHIRASAKI ET AL.

Examiner

John L. Goff

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/2/04 has been entered.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 8 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claim 8 recites the limitation "the same modified PTFE powder" (Emphasis added) in line 4. There is insufficient antecedent basis for this limitation in the claim, it being noted the molded granulated product is of the same as-polymerized modified PTFE such that it is suggested to delete "powder" to overcome the rejection.

Art Unit: 1733

6. Claim 10 requires “the disk-shaped premolded part has an external diameter corresponding to the internal diameter of the tubular premolded part.” (Emphasis added). However, the disk-shaped part only has an external diameter as exemplified by the examples in the specification and further in that a disk-shaped part is different from a tubular part such that it is suggested to delete “external” from the claim to overcome the rejection.

Claim Rejections - 35 USC § 103

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nitto (JP 1257031).

Nitto discloses that it is known to melt/fusion bond two fluoropolymer (e.g. PTFE, PFA, FEP, EPE COPOLYMER etc. and compare with applicants specification at Page 4, line 21 thru Page 5, line 10) parts/substrates together via a process wherein a heat shrinkable outer tubular part is placed over/around a second (less shrinkable i.e. different shrinkages) inner tubular part, bonding being effected by a combination of the heat shrinking force applied by the outer part and the hot melt characteristics of both parts. (English Translation Abstract and, in the translation

Art Unit: 1733

provided: Fig. 1 and Page 4, lines 1-25 and Example 1). It is noted Nitto is silent as to an express teaching of the coefficient of thermal shrinkage of the tubular parts as defined by applicant (at Page 7, lines 26-28). Nitto does teach the tubular parts generally have shrinkage rates in the range of 100-400%. However, the shrinkage rates taught by Nitto and the coefficient of thermal shrinkage taught by applicant are not a measure of the same parameter. In any event, the fluoropolymer materials employed in Nitto are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through Page 5, lines 1-10), and the object of Nitto is to bond two shrinkable objects using shrinking pressure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the coefficient of thermal shrinkage for the tubular bodies and their difference as a function of the bond strength produced as those skilled in the art readily appreciate the direct relationship between coefficient of thermal shrinkage and bonding pressure as it relates to bonding two shrinkable objects. It is noted Nitto does not require adhesive between the tubular parts as acknowledged by applicant (Page 6 of the response filed 8/2/04).

9. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nitto as applied in paragraph 8 above, and further in view of Mizumoto et al. (U.S. Patent 5,189,916).

Nitto as applied above teaches all of the limitations in claims 5 and 6 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Nitto by using a well known and conventional process such as molding tubular parts of

different particles sizes as shown for example by Mizumoto et al. as only the expected results would be achieved.

Mizumoto et al. disclose a method for forming molded parts to be joined by sintering wherein the shrinking ratio of each part is controlled by adjusting the particle size and/or density. (Column 2, lines 47-51 and 57-63 and Column 3, lines 28-31 and 58-61).

10. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nitto as applied in paragraph 8 above, and further in view of Clabburn (GB 1250503).

Nitto as applied above teaches all of the limitations in claims 5 and 7 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Nitto by using a well known and conventional process such as molding the tubular parts under different deformation pressures as shown for example by Clabburn as only the expected results would be achieved.

Clabburn discloses a method for forming modified PTFE tubular parts wherein the method comprises subjecting the tubular parts to a deforming force, i.e. the application of pressure by an expanding mandrel. Clabburn shows tubular parts having different shrinking ratios are formed by using different amounts of deforming force, i.e. pressure (Page 1, lines 14-24 and Page 2, lines 59-78 and 119-123 and Examples 1 and 2).

Art Unit: 1733

11. Claims 1-4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washizu (U.S. Patent 4,800,109).

Washizu discloses that it is known to melt/fusion bond two fluoropolymer (e.g. PTFE, PFA, FEP, etc. and compare with applicants specification at Page 4, line 21 thru Page 5, line 10) parts/substrates together via a process wherein a heat shrinkable outer tubular part is placed over/around a second (less shrinkable i.e. different shrinkages) inner tubular part, bonding being effected by a combination of the heat shrinking force applied by the outer part and the hot melt characteristics of both parts. (Figure 1 and Column 1, lines 44-51 and 65-68 and Column 2, lines 1-20, 29-34, and 55-56). It is noted Washizu is silent as to an express teaching of the coefficient of thermal shrinkage of the tubular parts as defined by applicant (at Page 7, lines 26-28).

Washizu does teach the tubular parts have shrinkage ratios in the range of 1.3:1 to 4:1, i.e. 30-400%. However, the shrinkage ratios taught by Washizu and the coefficient of thermal shrinkage taught by applicant are not a measure of the same parameter. In any event, the fluoropolymer materials employed in Washizu are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through Page 5, lines 1-10), and the object of Washizu is to bond two shrinkable objects using shrinking pressure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the coefficient of thermal shrinkage for the tubular bodies and their difference as a function of the bond strength produced as those skilled in the art readily appreciate the direct relationship between coefficient of thermal shrinkage and bonding pressure as it relates to bonding two shrinkable objects. It is noted Washizu does not require adhesive between the tubular parts (Figure 2).

Art Unit: 1733

12. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washizu as applied in paragraph 11 above, and further in view of Mizumoto et al.

Washizu as applied above teaches all of the limitations in claims 5 and 6 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Washizu by using a well known and conventional process such as molding tubular parts of different particles sizes as shown for example by Mizumoto et al. as only the expected results would be achieved. Mizumoto et al. is described above in full detail.

13. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Washizu as applied in paragraph 11 above, and further in view of Clabburn.

Washizu as applied above teaches all of the limitations in claims 5 and 7 except for a specific teaching on how to manufacture the tubular parts with different coefficients of thermal shrinkage. It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the tubular parts having different coefficients of thermal shrinkage taught by Washizu by using a well known and conventional process such as molding the tubular parts under deformation pressure as shown for example by Clabburn wherein only the expected results would be achieved. Clabburn is described above in full detail.

Allowable Subject Matter

14. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Claims 8 and 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 8, the prior art of record fails to teach or suggest forming two premolded parts of PTFE having different coefficients of thermal shrinkage in the range between 0.2 and 10% by molding (as one of the parts) an as-polymerized modified PTFE and by molding (as the other part) a granulated product of the same modified PTFE.

Regarding claims 10 and 11, while it is known to sinter and join by shrinking pressure two premolded parts wherein one of the parts is tubular in shape and the other is disk-shaped as shown by Morris (U.S. Patent 4,704,093) and it is known to join two premolded PTFE parts by externally restricting the expansion of one of the parts wherein one of the parts is tubular in shape and the other is disk-shaped as shown by FR 2535337, the prior art of record fails to teach or suggest sintering and joining by shrinking pressure two premolded parts of modified PTFE having different coefficients of thermal shrinkage in the range between 0.2 and 10% wherein one of the parts is tubular in shape and the other is disk-shaped.

Response to Arguments

17. Applicant's arguments with respect to claims 1-7, 9, and 11 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues Nitto fails to teach or suggest that parts composed of modified PTFE having a coefficient of thermal shrinkage in the range between 0.2 and 10% can be bonded. As noted above, the fluoropolymer materials employed in Nitto are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 4, lines 21-28 through Page 5, lines 1-10), and the object of Nitto is to bond two shrinkable objects using shrinking pressure such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine/optimize the coefficient of thermal shrinkage for the tubular bodies and their difference as a function of the bond strength produced as those skilled in the art readily appreciate the direct relationship between coefficient of thermal shrinkage and bonding pressure as it relates to bonding two shrinkable objects. Applicant further argues Washizu teaches when polymer materials having fusion properties are used no adhesive material is necessary, but when polymer materials having no adhesion properties with respect to one another are used an adhesive is required. Washizu does not teach anything regarding the fusion properties of the polymer materials as it relates to using an adhesive between the tubular bodies. Washizu clearly teach the use of adhesive is merely an alternative embodiment (Column 2, line 57).

Art Unit: 1733

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John L. Goff



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